

Taking the year 1906, December was the wettest month in Sandakan, Kudat, and Taritipan, the rainfall being respectively 29.00, 27.16, and 29.23 inches, while in Jesselton, Beaufort, and the British Borneo Para Rubber Estate (Beaufort) the most rain was registered as follows: Jesselton, August, 22.37; Beaufort, August, 27.15; Beaufort, April, 28.70 (?); British Borneo Para Rubber Estate (Beaufort), July, 23.30; British Borneo Para Rubber Estate (Beaufort), August, 21.48.

In 1907 Sandakan recorded 34.54 inches in February and 24.87 in March, December being comparatively dry with 16.96, while Kudat's雨iest month was March, with 22.51, Taritipan showing 27.14 for the same period. On the other hand, these months were amongst the driest on the west coast, Jesselton not reaching double figures till June and July with 11.45 and 12.96 inches, while the British Borneo Para Rubber Company's Estate, Beaufort (the hospital returns for that station being probably unreliable), show an average of 10 to 14 inches for every month thruout the year, with the exception of August (7.68), October (25.29), and December) 19.33.

#### BRILLIANT SKY GLOWS.

From many parts of middle and northern Europe and the British Isles come reports of a brilliant illumination of the northern sky during the night of June 30-July 1, 1908, and less conspicuous displays of a similar character on other nights preceding and following that date. *Nature* (London) of July 9 reports that the whole of the northern part of the sky, from the horizon to an altitude of about 45° and extending to the west, was suffused with a reddish hue, the color varying from pink to an Indian red. Several observers state that it was possible to read fairly small print at midnight without any aid from artificial light.

*Ciel et Terre* (Brussels) reports that in Belgium the illumination, which extended horizontally over an arc of about 90°, did not rise to more than from 5° to 10° above the horizon, tho its reflection extended more or less over the whole sky. It was of an intense golden yellow above and a pronounced red below, presenting somewhat the aspect of the eastern sky a few moments before sunrise. The region of maximum illumination moved slowly toward the east, apparently following the movement of the sun; at midnight it was due north.

All the accounts of the illumination agree that it presented none of the characteristic features of an aurora, but was probably due to the presence of dust (or, as T. W. Backhouse, in *Nature* of August 20, says, "some substance") at such a height in the atmosphere that the sun shone upon and illuminated it when far below the horizon of the observer. In this connection American readers should remember that in northern Europe around the time of the summer solstice the sun is never far enough below the horizon to put an end altogether to the twilight, under average conditions of the atmosphere.

#### RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Librarian.

The following have been selected from among the titles of books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be lent for a limited time to officials and employees who make application for them. Anonymous publications are indicated by a —.

#### Aachen. Meteorologisches Observatorium.

Niederschlagskarte der Rheinprovinz nebst den angrenzenden Teilen von Hessen-Nassau und Westfalen. 1894-1903. Essen. n. d. 1 sheet. 123 x 191 cm.

Erläuternder Text zur Niederschlagskarte der Rheinprovinz ... von P. Polis. Essen. 1908. 34 p. 4°.

Temperaturkarte der Rheinprovinz nebst den angrenzenden Teilen von Hessen-Nassau und Westfalen. Auf Grund zwanzigjähriger Beobachtungen 1881-1900. Essen. n. d. 2 sheets. 68 x 118 cm.

Erläuternder Text zur Temperaturkarte der Rheinprovinz ... von P. Polis. Essen. 1905. 20 p. 4°.

#### Australia. Commonwealth bureau of meteorology.

The climate and meteorology of Australia. Bull. no. 1 ... by H. A. Hunt. Melbourne. [1908.] 34 p. 8°.

#### Austria-Hungary. Hydrographisches Amt der K. und k. Kriegsmarine in Pola.

Jahrbuch der meteorologischen, erdmagnetischen und seismischen Beobachtungen. Neue Folge. 12. Band. Pola. 1908. xxiv, 152p. 4°.

#### British Guiana. Botanic gardens, Georgetown.

Meteorological observations. n. t. p. HH 23 p. 4°.

#### Curityba (Brazil). Observatorio meteorologico de Curityba.

Taboa de clima de Curityba. Valores normaes extremos e totais obtidos pelas observações feitas durante 23<sup>3</sup> de annos, de maio de 1884 a dezembro de 1907 ... Curityba. 1908. 1 sheet. 33 x 43 cm.

Resumo das observações feitas durante o anno de 1907. Curityba. 1908. 1 sheet. 32 x 41 cm.

#### France. Bureau central météorologique.

Annales. Année 1905. II. Observations. Paris. 1908. v. p. 4°. Same. Année 1905. III. Pluies. Paris. 1907. v. p. 4°.

#### Great Britain. Meteorological office.

Barometric gradient and wind force. Report to the director of the Meteorological office on the calculation of wind velocity from pressure distribution and on the variation of meteorological elements with altitude. By Ernest Gold. London. 1908. 44 p. 4°.

Hourly readings obtained from the self-recording instruments at four observatories ... 1907. London. 1908. xvii, 197 p. 4°.

#### Liverpool observatory.

Report of the director of the observatory to the Marine committee... Liverpool. 1908. 43 p. 8°.

#### Mauritius. Royal Alfred observatory.

Results of the magnetical and meteorological observations ... 1906. London. 1908. xxx (lxxv) p. 4°.

#### Montevideo. Colegio Pio de Villa Colon. Observatorio meteorologico.

Años meteorológicos 1902-3, 1903-4 y 1904-5. Montevideo. 1907. 16 p. 4°.

#### Netherlands. Koninklijk nederlandsch meteorologisch institut.

Observations océanographiques et météorologiques dans l'océan Indien. Septembre, octobre, novembre (1856-1904). Utrecht. 1908. xiii, 190 p. 4°.

#### Prussia. Landesanstalt für Gewässerkunde.

Jahrbuch für die Gewässerkunde Norddeutschlands. Besondere Mitteilungen. Band 1 (Heft 2). Berlin. 1907. vi, 101 (25) p. 4°. Same. Band 2 (Heft 1). Berlin. 1907. 96 p. 4°.

#### U. S. Philippine commission.

Report. 1907. 3 parts. Washington. 1908. 8°.

#### RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.

C. FITZHUGH TALMAN, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a —.

*American journal of science*. New Haven. 4th ser. v. 26. August, 1908. Ashman, George C. A quantitative determination of the radium emanation in the atmosphere. p. 119-123.

*Scientific American*. New York. v. 99. 1908. — The work of a Nebraska cyclone. p. 78. (August 1.) Cummings, Edith E. A young girl's theory of thunderstorms. p. 123. (August 22.)

*Sierra club bulletin*. San Francisco. v. 6. June, 1908. LeConte, Joseph N. Snowfall in the Sierra Nevadas. p. 310-314.

*Telegraph age*. New York. v. 25. August 1, 1908. Willey, Day Allen. Electricity in the United States Weather Bureau. p. 513-515.

*Geographical journal*. London. v. 32. July, 1908. Mill, Hugh Robert. The geographical distribution of rainfall in the British Isles. p. 59-65.

E., J. W. South American rainfall. p. 76-77. [Review of work by Voss.]

*Nature*. London. v. 78. July 30, 1908. Chree, C. The isothermal layer of the atmosphere. p. 293.

Symons's meteorological magazine. London. vol. 43. July, 1908.

Bates, D. C. Report upon dry period and rain-making experiments at Oamaru, New Zealand. p. 107-111.

- France. Académie des sciences. Comptes rendus. Paris. Tome 147. 1908.*
- Esclangon, Ernest. Sur les variations de la durée du crépuscule. p. 27-29. (6 juillet.)*
- Teisserenc de Bort, L. Recherches sur la présence des gaz rares dans l'atmosphère à diverses hauteurs. p. 219-221. (20 juillet.)*
- Géographie. Paris. Tome 17. 15 mars 1908.*
- Heller. Les expériences de M. Teisserenc de Bort en Laponie. p. 226-227.*
- Nature. Paris. 36. année. 18 juillet 1908.*
- Le néphoscope Arsimis [sic]. p. 112. [Illustrated.]
- Annalen der Hydrographie und maritimen Meteorologie. Berlin. 36. Jahrgang. Juli. 1908.*
- B., v. d. Neue Sturmwarnungs signale in Japan. p. 317-318.
- Gaen. Leipzig. 44. Jahrgang. August, 1908.*
- Angebliche Gleichförmigkeit des Klimas in der Jurazeit. p. 457-460.
- Geographische Zeitschrift. Leipzig. 14. Jahrgang. July, 1908.*
- Knörzer, A. Ueber die Temperaturverhältnisse der oberrheinischen Tiefebene. p. 372-396.
- Meteorologische Zeitschrift. Braunschweig. 25. Band. Juni, 1908.*
- Maurer, J. Die Wärmeabnahme mit der Höhe in den Schweizer Alpen. p. 241-246.
- Michelson, W. A. Ein neues Aktinometer. p. 246-253.
- Hann, J[uli]. H. Mohn über die meteorologische Ergebnisse der zweiten norwegischen arktischen Expedition im "Fram," 1898 bis 1902. p. 256-259.
- Hann, J[uli]. Das amazonische Klima. p. 259-260.
- Guillemard, H., and Moog, A. Ueber den Einfluss des Höhenklimas auf den Hydratwasserverlust des Organismus. p. 262-263.
- Trabert, Wilhelm. Witterung und Geisteskrankheit. p. 263.
- Schmauss, A. Die Temperatur der unteren Schichten der freien Atmosphäre über München am 2., 3. und 4. Januar 1908. p. 263-267.
- Untersuchungen über die Veränderlichkeit der jährlichen Niederschlagsperiode im Gebiete zwischen der Donau und nördlichen Adria. p. 274-275.
- Hegyfoky, Jacob. Die Lufttemperatur in Ungarn zur Zeit der Ankunft von 32 Vogelarten. p. 276-280.
- Köppen, W. Die Orientierung fallender Prismen in der Luft. p. 280-283.
- Zum Klima des Französischen Sudan. Oberes Senegambien p. 284.
- Neueste Erdbeben Nachrichten. Laibach. 7. Jahrgang. 1907-8.*
- Messerschmitt, J. B. Bericht über die erste Generalkonferenz der Internationalen seismologischen Association im Haag. p. 118-121.
- Physikalische Zeitschrift. Leipzig. 9. Jahrgang. 1908.*
- Michelson, W. A. Ein neues Aktinometer. (1 Januar.) p. 18-24.
- Weltall. Berlin. 8. Jahrgang. 1908.*
- Frech, Fritz. Ueber Erdbeben. (15 Juni; 1, 15 Juli.) p. 277-282; 292-303; 305-310.
- Gellhorn, O. von. Leuchtende Nachtwolken? (1 Juli.) p. 291-292.
- Weiter. Berlin. 25. Jahrgang. 1908.
- Süring, R. Die verheerenden Gewitter und Regenfälle in Norddeutschland vom 20. bis 24. Mai 1908. (Juni.) p. 121-129.
- Knoch, Karl. Die Entwicklung unserer Kenntniss des Windschutzes bei der Aufstellung der Regenmesser. (Juni, Juli.) p. 129-131; 151-158.
- Joester, Karl. Die Föhnerscheinungen im Riesengebirge. (Juni.) p. 131-134.
- Schulze, Paul. Ludwig Friedrich Kämtz. (Juli.) p. 145-151.
- Wiener Luftschiffer-Zeitung. Wien. 7. Jahrgang. Juli, 1908.*
- Dr. Kurt Wegener. p. 150-151. [With portrait.]
- Zeitschrift für Instrumentenkunde. Berlin. 25. Jahrgang. Juni, 1908.*
- M., J. Bimetallisches Blatt-Aktinometer. p. 192-194. [Review of work by W. A. Michelson.]
- Archives néerlandaises des sciences exactes et naturelles. Harlem. 2d ser. Tome 13. 1908.*
- Sande Bakhuizen, H. G. van de. La réfraction astronomique, d'après une distribution de la température atmosphérique déduite de sondages en ballon. p. 342-355.
- Heem en Dampkring. Den Haag. 6. Jaargang. 1908.*
- Smits, P. J. Dagelijksche gang van den regenval te Batavia. (Juni, Juli.) p. 20-23; 33-37.

## THE WEATHER OF THE MONTH.

By Mr. P. C. DAY, Acting Chief, Climatological Division.

### PRESSURE AND WINDS.

The distribution of mean atmospheric pressure for July, 1908, over the United States and Canada, is graphically shown on Chart VI, and the average values and departures from the normal are shown for each station in Tables I and III.

There was a marked rise in pressure from that of June, 1908, over all portions of the United States and Canada, except along the coast of California and Oregon and a small area over the lower Lake region. The increase over the Great Plains and Rocky Mountain districts was unusual for the season, ranging from 0.10 to 0.26 inch.

The average pressure for the month was above normal over all districts, except a small area in northern California. Over the central Rocky Mountain region the pressure averaged more than 0.1 inch above normal, while over nearly all the remaining districts of the United States and Canada there was a rather uniform positive departure of from .05 to .08 inch.

Southerly and southwesterly winds prevailed over most of the districts east of the Rocky Mountains and also generally over the southern Plateau, while along the immediate Pacific coast they were mostly from the northwest.

There was a marked absence of high winds, and the average hourly movement was below the normal over nearly all districts, except along the immediate Atlantic coast where there was an excess ranging from 10 to 40 per cent.

### TEMPERATURE.

The mean temperature for the month was below the normal over the southern portion of the Gulf States and from the middle Mississippi Valley westward to the Rocky Mountains and southward to the Mexican border, except over a small portion of southern Texas. There was a small deficiency also along the immediate Pacific coast and at points in western Virginia.

Over the Atlantic coast districts and from New England westward over the Lake region to the Dakotas, and generally

over the Rocky Mountains, Plateau, and Pacific coast districts, the mean temperature was above the normal, being especially high over central and northern California, Oregon, and eastern Washington, and the surrounding portions of Idaho and Nevada, where the positive departures ranged from 3° to 5° per day.

Maximum temperatures ranged from 90° to 98° over most districts east of the Rocky Mountains, except in the upper Missouri Valley, where they reached 100° or slightly higher. In the interior valleys of California, over southern Arizona, and in the lower Rio Grande Valley, they ranged from 100° to 114°.

Minimum temperatures below 40° were recorded in northern New England, along the northern border from the upper Michigan Peninsula to northern Washington, and generally over the Rocky Mountain districts from New Mexico northward. Temperatures of 32° or slightly lower occurred at a few points along the Main Divide from central Colorado to the Canadian border.

### PRECIPITATION.

The distribution of precipitation during July, 1908, is graphically shown on Chart IV by appropriate shading or by figures representing the actual amount of fall over districts, the topography of which is too varied to admit of approximately correct shading.

The monthly amounts of precipitation east of the Rocky Mountains ranged generally from 2 to 4 inches, with somewhat larger amounts over portions of the lower Missouri Valley, in northern Texas, and portions of Oklahoma and Arkansas, and generally over the Gulf and South Atlantic States, where the average ranged from 4 to 6 inches, with local falls of more than 10 inches in eastern Texas, the southern portions of Louisiana and Mississippi, northern Florida, and eastern North Carolina.

Comparatively heavy rains for the region, 2 to 5 inches, occurred over the greater part of Arizona and New Mexico and